Are Stereotypes of Social Media Users Accurate?

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Abstract

Stereotypes are developed, in part, as a result of personal experiences with members of differing groups (Jussim, Harber, Crawford, Cain, & Florette, 2005; Koenig & Eagly, 2014), and therefore some stereotypes can be accurate reflections of shared attributes of some groups of individuals (Konig & Eagly, 2014). However, stereotypical or average personalities of groups of social media users have not yet been examined. To a limited extent, previous research has demonstrated that strangers can make valid personality inferences using information about individuals' social media activities, including social media profiles (Gosling, Augustine, Vazire, Holtzman, & Gaddis, 2011), and Facebook "likes" (Kosinski, Stillwell, & Graepel, 2013). In this study, we attempt to connect these areas of research by examining whether perceived stereotypes of the personality qualities of "typical" users of differing social media outlets corresponded to the personalities of actual typical users. Following the tendency in the larger literature investigating strangers' impressions of individual targets' personalities based on limited information, we anticipated strong correlations for extraversion, conscientiousness, and openness to experience in addition to weak correlations for agreeableness and neuroticism. In this study we found a statistically significant correlation between the average self-reported personalities of actual users and perceived personality profiles (i.e., stereotypes) of average users across 12 social media platforms for openness to experience, but not for the other personality factors examined.

Keywords: personality, stereotypes, social media

Are Stereotypes of Social Media Users Accurate?

A stereotype is a belief about the attributes of groups and their individual members (Jussim, Harber, Crawford, Cain, & Florette, 2005). According to social role theory, stereotypes that people have about some groups (whose members share a particular demographic category, occupation, or interest) are, in part, a result of personal experiences with members of that group (Koenig & Eagly, 2014). For example, Koenig and Eagly (2002) found that participants had stereotypes about the behavioral attributes of politicians as a group related to being able to influence people and an affinity for dominance or power. These stereotypes are common because a large number of individuals have had personal experiences in their day to day interactions with or exposure to politicians.

Stereotypes, and research surrounding stereotypes, are believed to be heavily subject to biases (Jones, 1986). One bias that is commonly associated with stereotypes is the confirmation bias. Confirmation biases occur when expectations cause individuals to perceive another in a way that confirms their personal expectations (Jussim et al., 2005). This is thought to happen because if an individual holds a belief about a group of people they typically are very invested in the accuracy of that belief. Contrary to that idea, however, a great deal of research has found that on average what we believe to be true about a certain group is not simply true because we expect for it to be true, but rather because the belief is actually true. Jussim et al. conducted a meta-analysis of 1,022 experimental studies dealing with stereotype biases. These studies explored stereotype expectations (about race, gender, attractiveness, social class, etc.) and whether or not these expectations bias perceptions within the context of four different situations: work evaluations, memory, criminal sentencing, and mock jurors' verdicts. The meta-analysis found that stereotyped expectations

had no more than a trivial effect (average effect size of .10), substantially influencing social perceptions only approximately 5% of the time (Jussim et al., 2005).

Another bias that stereotypes are believed to be subject to are encouragements of self-fulfilling prophecies in targets of the stereotype (Jost & Kruglanski, 2002). This belief may be common, but it is not supported by the general pattern of experimental research. Jussim et al. (2005) conducted another meta-analysis across five studies involving stereotyped expectations from teachers and potential self-fulfilling prophecy effects of students. Teacher expectations were recorded at the beginning of the year to control for any exposure to student achievement prior to making the prediction. It was found that self-fulfilling prophecy effects were on average very small, and ranged from non-existent to moderate. This pattern was also found in self-fulfilling prophecy studies within the contexts of therapy, college roommates, and small cohorts of MBA students (Jussim et al., 2005). This suggests that stereotypes do not actually influence the targets to act in accordance with any known expectations that may have been place upon them.

Although both confirmation biases and expectancy effects have some influence on our perceptions of others, the research makes it clear that the these biases play a minor role in people's perceptions of targets, relative to the influence of targets' actual characteristics and behaviors (Jussim et al, 2005). This pattern of findings suggests that some stereotypes may have some degree of accuracy, although whether this generalizes to perceptions of groups is not directly informed by this research.

However, other research has demonstrated that when individuals are presented with a list of attributes or behaviors pertaining to another individual, they can accurately use stereotypes to group that person on the basis of multiple social factors and roles. Koenig and

Eagly (2014) conducted a study in which participants rated behaviors and personal traits of individuals. The participants were given lists of seven or eight attributes and asked to identify the occupation, gender, race, sexuality, and socio-economic status of the individual that would most likely possess the listed behaviors and traits. They found that depending on the activities and behaviors listed, participants could reliably associate personal attributes to the imagined individual. This was especially the case for voluntary group membership (i.e., occupational category), in which it was shown that participants could accurately associate the attributes to the occupation of the imagined individual. For example, when presented with a list of behaviors that included accepting payment from customers, communicating with customers regarding orders, comments, and complaints, and cleaning and organizing service areas, participants reliably identified the occupational category of targets as food service workers (Koenig & Eagly, 2014). This means that if an individual is given information regarding the behavioral or personal qualities of another individual, they can accurately place that individual into an existing stereotyped group. This also means that individuals are able to accurately associate an imagined individual using little information with not only demographical groups but also self-selected groups such as an occupation. Self-selected groups differ from demographical groups because the individual is the primary agent of control to determine membership status in that group.

Social media usage, much like occupation, reflects the same choice-making aspect of membership. Individuals decide which social media platforms they sign up for and use much like individuals train and work in occupational areas that they choose. If individuals can accurately identify a self-selected group of people occupationally, then individuals should be

able to do the same with the self-selected group of social media users of various social media platforms.

Another way for a person to gain access to information regarding the behavioral or personal qualities of another person is through physical evidence left behind in a living or working environment. This "behavioral residue" includes any physical remnants a person leaves behind within a space that denotes any activity they may have engaged in. Research has found a link between the personal space in which individuals spend a significant amount of time and observers' impressions of the individuals based on those environments (Gosling, Ko, Mannarelli, & Morris, 2002). Gosling et al. proposed four main research questions to test if individuals actually leave behind behavioral residue in the spaces that they occupy most frequently, and if observers can actually use those behavioral residues to make inferences about personality. First, can multiple observers come to a consensus about an individual's personality based on their untouched, personal environment? Second, are the observers' assumptions about the personality of the target accurate? Third, upon which environmental cues (e.g., odor, temperature, neatness, use of space, organization, number of books or magazines, color scheme) are the observers making their personality assumptions? And lastly, which environmental cues are actually valid when assessing personality? These four questions were explored in two separate studies, the first of which took place in the office spaces of the targets in question and the second of which took place in the living quarters of the targets in question (Gosling et al., 2002).

In the preliminary study, ninety-four offices within five office locations (a commercial real estate agency, an advertising agency, a business school, an architectural firm, and a retail bank) were selected for eight observers to use as environments to make

estimations about targets' personalities through residual cues. The rooms were not touched, but only slightly altered to remove any personal photographs or any display of the targets' names. The observers had absolutely no instruction as to what they should be looking for, and none of the observers had any contact with one another to eliminate any confounds. The researchers found that observers agreed strongly on the targets' levels of openness to experience, conscientiousness, extraversion, and somewhat on the targets' level of agreeableness without any conversing with one another. Further, raters accurately rated targets' levels of openness to experience and also, but less so, the targets' levels of extraversion and conscientiousness. Lastly, the observers were able to identify several cues that were used to make their openness to experience, conscientiousness, and extraversion ratings, and those cues were accurate predictors of those factors of personality (Gosling et al., 2002).

Because office spaces may only be a window into personality traits related to work behaviors and not necessarily broader personality, the researchers used the second study to analyze behavioral residues left behind in personal living spaces. Eighty-three bedrooms (in houses, apartments, dorm rooms, and Greek-housing systems) belonging to university students and recent graduates of a West Coast public university were selected for seven observers to make personality ratings much like in the first study. Again, the rooms were only manipulated to remove any trace of the target's name and personal photographs. The raters also, like the first study, had no communication among themselves. In this study the findings were very similar to the first study. The researchers found that observers agreed strongly on targets' levels of openness to experience, conscientiousness, and extraversion. Observers were very accurate in rating openness to experience, and moderately accurate for

the remaining four factors of personality. Observers used residual cues related to openness to experience and conscientiousness, and those cues were accurate representations of personality factors (Gosling et al., 2002). Collective, these two studies show that physical evidence of behaviors can be used to stereotype individuals and, ultimately, make personality inferences.

This behavioral residue research was then extended from physical spaces to online spaces by looking at social media behavior, specifically on Facebook (Gosling, Augustine, Vazire, Holtzman, & Gaddis, 2011). One hundred thirty-three modified Facebook profiles (belonging to undergraduate students of the University of Texas at Austin) were observed by nine undergraduate research assistant raters for residual cues that may be used to make ratings of the targets' personalities. The Facebook profiles were modified in the sense that they were PDF versions of the profiles so that observers could only look at the main page of the profile. The observers also had access to only 10 photographs randomly selected from the albums that the target had publically viewable. Gosling et al. found that observers were accurate in assessing personality factors of openness to experience and conscientiousness based on the limited information presented in the targets' Facebook profiles (Gosling et al., 2011). These findings demonstrate that evidence of behavior is not only available in online settings, but also that individuals can use this information to stereotype other individuals and make inferences about their personality just as they can with physical remnants of behaviors.

Other researchers explored the realm of online behavioral residue to see if personality, among other personal information, could be predicted using public digital records in the form of Facebook "likes" (Kosinski, Stillwell, & Graepel, 2013). In a large study consisting of over 50,000 individuals' Facebook "likes," it was found that the big-five

personality factors and intelligence could be predicted using a model of linear regression. The strongest accuracy of predictions using the linear regression model was found for openness to experience, extraversion, and intelligence (Kosinski et al.) These findings along with the findings from Facebook profiles demonstrate that evidence of behavior is not only available in online settings, but also that individuals can use this information to stereotype other individuals and make inferences about their personality just as they can with physical remnants of behaviors.

Social interactions are largely moving to the online sphere of social media, which begs the following question: Do individuals form stereotypes based on their online interactions with social media users? If we apply the social role theory broadly to stereotypes of social media users, it means that we hold these perceived personality traits of individuals based on the social media platforms they use most often fundamentally because of personal experiences we have with users of those platforms. For example, imagine the common case of a Twitter timeline where friends are consistently posting specific aspects about their day. Someone writes '*at the doctors office'* another writes *'headed out of town to see my grandparents!'* and another *'just had the best pb&j.'* If we see that our Twitter timeline consists of intimate details about users' days then we may conclude that all Twitter users would score high on a narcissism scale. It is important to note that the experiences that server as the bases of stereotypes are most likely not limited to online experiences, but also include real-world interactions as well. For instance, imagine we know someone in our lives who spends most of their free time on a social gaming site and that this person is characteristically very soft spoken and a person of few words. This individual prefers to spend time by themselves, and typically avoids large crowds. We may determine based on

our experiences with that individual that other users of gaming sites are the same way and would collectively score low on an extraversion scale. In today's society people have interactions with social media users extremely frequently, however, little to no research has been done to systematically explore possible societal stereotypes of social media users.

The Current Study

Overall, previous research has demonstrated that stereotypes have a moderate degree of accuracy in making assessments about groups of individuals and the personality traits that members of that group may have. Previous research has also demonstrated that strangers can make valid personality inferences using information about individuals' behavioral residue in personal spaces such as an office or a bedroom (Gosling et al., 2002) and also through social media presence such as social media profiles, number of Facebook "friends" (Gosling et al., 2011), and Facebook "likes" (Kosinski et al., 2013). Previous research has only examined this phenomenon on an individual level, but never as broadly as an entire group. In this study, we plan to extend the empirical findings regarding indicators of personality in social media to a more generalized level to see if differing social media platforms can collectively serve as a reliable window into typical users of various social media outlets. Specifically, we plan to examine whether perceived stereotypes of the personality qualities of "typical" users of differing social media outlets correspond to the average self-reported personality profiles of actual users of each of those outlets.

We hypothesize that the stereotypical personality profiles of various social media users will correlate positively with the self-reported personality profiles of users across the examined social media platforms. Following the tendency in the larger literature investigating strangers' impressions of targets' personalities based on limited information,

we anticipate strong positive correlations for extraversion, conscientiousness, and openness to experience and weak positive correlations for agreeableness and neuroticism. In additional exploratory analyses, we will also examine the congruence between stereotypical and self-reported average profiles of users for intellect and narcissism.

Methods

Participants

In Phase I, 247 participants (124 male, 121 female, 2 not reported) were surveyed. The participants were on average 33.15 years old (min: 18, max: 73) and had an average education level of a bachelor's degree (2 less than high school or GED, 32 high school or a GED, 60 associate's or some college, 104 bachelor's degree, 43 master's degree, 5 doctoral degree). Participants were limited to United States residents. Of the 247 participants, an average of 67 "typical" users were identified for each platform (see Table 1 for the number of typical users of each social media platform*)*.

In Phase II, 710 participants (371 male, 337 female, 2 not reported) were surveyed. Participants were on average 32.32 years old (min: 18, max: 74) and had an average education level of a bachelor's degree (4 less than high school or GED, 95 high school or GED, 240 associate's or some college, 272 bachelor's degree, 85 master's degree, 15 doctoral degree). Again, participants were limited to United States residents. Of the 710 participants, an average of 60 participants responded for each social media platform (see Table 1 for the number of participants that responded for each social media platform).

IRB approval for Phase I was received on September 18, 2015. IRB approval for a modification for additional participants was received on January 08, 2016 (IRB #16-0052; see Appendix).

Measures

In Phase I, a 50-item five-factor model personality inventory (IPIP-NEO; Goldberg et al., 2006) was used to assess extraversion, neuroticism, agreeableness, conscientiousness, and openness to experience. An additional 10 items were used to assess intelligence (Gough, 1987) and an additional 1 item was used to assess narcissism (Konrath, Meier, & Bushman, 2014). Extraversion, neuroticism, agreeableness, conscientiousness, openness to experience, and intelligence were scored using a 5-point bi-polar rating scale (1-very inaccurate, 2-inaccurate, 3-neither accurate nor inaccurate, 4-accurate, 5-very accurate). For example, participants would be asked to rate how inaccurately or accurately each item describes them and would be faced with items such as *enjoys hearing new ideas* and *does not enjoy going to art museums* as measures of openness. As these two items illustrate, items assessed both the cognitive and behavioral components of each factor or personality. Further, items were presented in a both regular scaling and reverse scaling manner.

Narcissism was scored using a 7-point bi-polar rating scale with a single positive and negative anchor (1-not very true of me, 7-very true of me). This item read *to what extent to you agree with the statement: "I am a narcissist." (Note: The word "narcissist" means egotistical, self-focused, or vain).* Due to the revision of the narcissism item that is described below, Phase I narcissism scores were multiplied by 5/7 to rescale the scores to be on a 5-point scale, similar to those in Phase II.

The same measures for extraversion, neuroticism, agreeableness, conscientiousness, openness to experience and intelligence described in Phase I were also used in Phase II. The measures used in Phase I were modified, however, to reflect a stranger-other report. Here the instructions read *Please indicate how inaccurately or accurately each of the following items*

describes the "typical" _____ user with the randomly assigned social media platform identified in the instruction. Again, items assessed both cognitive and behavioral components and were presented in both a regular scaling and reverse scaling manner.

The single-item narcissism measure used in Phase I was expanded into a 4-item measure. *I am a narcissist (Note: The word "narcissist" means egotistical, self-focused, or vain)* became *is narcissistic, is egotistical, is self-focused,* and *is vain.* All factors of personality in Phase II were scored using the same 5-point bi-polar rating scale (1-very inaccurate, 2-inaccurate, 3-neither accurate nor inaccurate, 4-accurate, 5-very accurate) as was used in Phase I.

Procedure

In Phase I, using Amazon Mechanical Turk, participants completed a survey in which they were asked to report about differing facets of their cell phone usage including information about their calling behaviors, text messaging behaviors, photographs, and, what is central to this particular study, their social media usage. The survey questions regarding social media behavior included which social media platforms (i.e., Facebook, Twitter, Instagram, LinkedIn, Pinterest, Tumblr, Snapchat, Yik Yak, reddit, traditional dating sites, mobile dating sites, or gaming sites) the participants use on their cellphone or any other device, as well as the frequency and duration with which they used each social media platform. The participants were then asked to complete the personality inventory described previously. A typical user was identified from Phase I reports and defined as someone who used the social media site three or more times daily (see Table 1 for the number of typical users of each social media platform). Mean self-reported personality profiles of the

participants that met that requirement for each social media site were used to create the "actual" personality profiles of typical users with respect to each social media site.

For Phase II, a second survey was administered using Amazon Mechanical Turk, using an independent sample of participants. The survey used a between-subjects approach in which participants rated what they perceived as the typical user for one of the social media platforms examined in Phase I. Each participant was randomly assigned to report on the typical user of only one of these social media platforms (i.e., Facebook, Twitter, Instagram, LinkedIn, Pinterest, Tumblr, Snapchat, Yik Yak, reddit, traditional dating sites, mobile dating sites, or gaming sites) to avoid carryover and contrast effects. If the participant was not familiar with the social media platform they were assigned they were not permitted to continue the survey, but they were allowed to access the survey a second time with the possibility of being assigned a platform they were familiar with. Participants were asked to imagine a typical user of the social media platform that they were assigned and then asked to complete the parallel "other-reported" version of the personality measures described previously. The mean other-reported personality profiles were used to create the perceived (i.e., stereotyped) personality profiles of typical users with respect to each social media site.

Results

Figures 1-7 show the correlations between mean actual scores and mean perceived scores for each of the assessed factors of personality individually across all twelve social media platforms. Each factor of personality is displayed in a separate figure. The horizontal axis of each figure is labeled with the twelve social media platforms (i.e., Facebook, Twitter, Instagram, LinkedIn, Pinterest, Tumblr, Snapchat, Yik Yak, reddit, traditional dating sites, mobile dating sites, or gaming sites), and the vertical axis is labeled to reflect the 5-point

rating scale (very inaccurate, inaccurate, neither accurate nor inaccurate, accurate, very accurate). In each figure the mean actual scores are denoted by the squares connected by the dark black line, while the circles connected by the lighter line denote the mean perceived scores.

It was found that across the twelve social media platforms, stereotypes regarding the level of openness to experience of users were systematically accurate and statistically significant, r (12) = .66, p = .02. This means that Phase II participants' judgments about the openness of typical social media users were similar to the self-reported levels of openness of actual typical users of those social media platforms. We did not find any other statistically significant results, (r (12) = -.09, p = .77 for neuroticism; r (12) = -.12, p = .71 for extraversion; r (12) = -.06, p = .86 for agreeableness; r (12) = .00, p = .99 for conscientiousness; r (12) = .01, p = .97 for intellect; and r (12) = -.05, p = .87 for narcissism). These findings mean that the perceived stereotypes of the remaining factors of personality were not systematically accurate. Phase II participants' stereotypes did not agree with the self-reported personalities of typical users.

Discussion

Although we hypothesized positive correlations between the personality profiles of typical social media users and the stereotyped personality profiles across all the factors of personality we were assessing, we found a significant correlation for only openness to experience. This finding corresponds to the findings in the previous literature in which raters were able to use residual behavior cues to accurately rate openness to experience. This may be because openness to experience leaves behind more evidence than some other factors of personality. If a person is high in openness, they typically leave a trail of photographs,

memorabilia, and diverse material possessions such as books on widely unrelated topics. In the study looking at behavioral residues within offices and bedrooms, observers were found using specific cues to make decisions about the level of openness to experience of the target in question. These cues included the colorfulness of the room, the stylishness of the room, how many books, CDs, and magazines they had and how varied the topics of each were in relation to one another. Not only were the observers using these cues within the same manner, but such cues were found to be accurate predictors of the targets' levels of openness to experience (Gosling et al., 2002).

Other factors, such as agreeableness and extraversion, may not leave behind as many informative cues in the same way that openness to experience does. Raters commonly associate agreeableness and extraversion similarly because both agreeableness and extraversion are personality traits that are often displayed in similar contexts such as conversations and other interpersonal interactions (Gosling et al., 2002; 2011). Ordinarily there would be less evidence of either agreeableness or extraversion within a physical or personal space. Gosling et al. (2002) reported that the only valid, statistically significant cue of agreeableness within offices and bedrooms would have been whether the space was considered a high or low traffic area. Observers, however, did not use this cue. Instead, the observers used the comfort level of the room and the odor of the room as an indicator of agreeableness, even though these were not valid cues.

Gosling et al. (2002) also reported that valid cues for determining extraversion levels were limited to the temperature of the room, whether the room was decorated, whether or not the room was inviting, and the organizational level of the room. They found that observers only used whether or not the room was decorated or whether or not the room was inviting as

cues for extraversion. Observers also used a wide range of other cues in determining targets' levels of extraversion such as the size of the room or the cleanliness level of the room, but they were not actually valid cues (Gosling et al., 2002). These patterns show that it is difficult for individuals to pick up on evidence of targets' levels of agreeableness or extraversion and that only a few valid cues actually exist. Of the small number of cues that people do leave behind, it is difficult for individuals to actually recognize those cues as useful in making decisions about targets. Agreeableness and extraversion leave behind minimal evidence and are difficult to pick up on.

Similarly, neuroticism is something that people do not easily reveal to others, especially within a public context. Neuroticism is characterized by negative emotional stability, which is primarily an internal struggle meaning it would be less likely to leave any outward evidence. Within the context of physical spaces, research found that valid cues for making inferences about neuroticism are also far and few between and were limited to whether the room was decorated, and the level of formality of the room. Again, it was found that observers were not using the valid cues. Observers were instead found using whether or not the room was inviting as the only cue for targets' levels of neuroticism (Gosling et al., 2002). The same pattern was found within the context of online spaces. Research found that none of the examined Facebook indicators of personality were being used to make judgments about targets' neuroticism levels when looking at their modified Facebook profiles (Gosling et al., 2011). Again, this means that not only do people leave behind fewer cues of their neurotic tendencies, but also observers have a very difficult time determining what cues are important or valuable when making inferences about targets' levels of neuroticism.

A statistical reason for why we did not find any other positive, statistically significant correlations between the personality profiles of typical users and perceived stereotypes could be because we calculated the correlation across all social media platforms for each factor of personality and therefore only had 12 degrees of freedom for each correlation. However, correlations are only one way of analyzing these data. The data could be further analyzed to assess variance between the typical scores and also between the reported, stereotyped scores. Assessing the variance will give insight into how closely both the typical users are in their self-reported personality scores and also the perceived, stereotyped personality scores. Large variances would indicate that individuals' stereotypes are not widely shared with one another. Small variances, on the other hand, would imply that these individual stereotypes are actually commonly shared among reporters.

This is an important step in the unfolding of this story, because it could be that certain social media sites attract more niched groups of individuals that others. If that were the case, then it would be easier to make accurate inferences about personalities for those types of platforms. For instance, Pinterest may be considered a social media platform that attracts a certain kind of audience due to the value of sharing within that community and the do-it-yourself nature of the majority of the content. Behaviors such as wedding planning and DIY room decorating are common on Pinterest as well as sharing recipes, and gift ideas for loved ones. It may be easier for individuals to agree on what type of person would subscribe to being a member of this social media group, and therefore a more reliable perceived personality profile would be achieved by participants' reported stereotypes. On the other hand, it would be difficult to make inferences about personality for social media platforms that do not necessarily attract niched groups. For instance, Facebook is a very widely used

social media platform by a very diverse number of people. Facebook can be altered in such a way that the user can customize the type of people, the number of people, and largely the type of content they interact with. A site like Facebook with little to no specialized attraction would probably be very difficult to come to a consensus of a possible stereotyped personality profile because the diversity of individuals imagined as a "typical" user would be remarkable and unavoidable.

Because we limited participants in both Phase I and Phase II to only include individuals within the United States, the findings are only generalizable within this country. It is most likely that social media use differs greatly globally. Subsequently, stereotypes of differing social media users around the world are also probably much different than stereotypes of social media users within the United States. If we were to look cross-nationally, variance levels would likely be even larger than levels within this study because of the inconsistency in social media usage between world regions and perceived stereotypes for each social media platform.

Another thing we had hypothesized to find in this study but did not find was a significantly significant correlation between actual extraversion scores and perceived extraversion scores across the twelve social media platforms. However, an examination of Figure 2 reveals that actual scores for all platforms are near the neutral score for extraversion. This is a trend that we did not anticipate to see. One reason for this odd finding across all twelve platforms could be that within the actual scores for each platform there could have been a near perfect balance between those who would rate themselves high in extraversion and those who would rate themselves low, although the chances of that would be very low.

This unexpected lack of differentiation across platforms for extraversion merits further inquiry.

Narcissism was an exploratory analysis that we assessed across the social media platforms. If you look at Figure 7, you will notice that the actual scores are all far below the neutral score. This tells us that apparently each person that uses a social media platform is low on narcissism. However, this finding may be due to the way in which we scaled the narcissism item. The 1-item narcissism measurement in the preliminary survey was on a seven-point scale, while the other personality factors were on a five-point scale. In order to make these personality factors uniform, we rescaled the average narcissism scores to match the other factors. In doing so, we may have lost or distorted some information. Another reason for such low scores across the board could be because we did in fact only use one item to assess narcissism, while using 10 for each of the other factors. It could be that one item is not enough to get a true measure of actual narcissism. The third and final reason that we could have gotten such low scores across all platforms could be because individuals may not want to admit to narcissistic behaviors.

This study is a good starting point for a lot of further research, foremost because a lot of issues were identified with how the data were managed. For example, future research could potentially create personality profiles of typical users with a more restrictive operational definition of "typical." As stated previously in the methods section of this paper, we defined a typical user as someone who uses the social media site in question three or more times daily. Depending on the platform, however, it could be that the definition of a typical user varies. For instance, it may be that a typical user for gaming sites may only visit the site once a day, but in that one visit they are spending a large amount of time on the site.

The same criteria used in this instance could not be used for a social media platform such as Snapchat, because it may be the case that ordinarily users of Snapchat visit the platform frequently throughout the day, but for only a few seconds at a time. By using a more restrictive, or more tailored, definition of a typical user, one could expect to see more accurate scores for typical users.

Future research could also utilize a more focused survey for actual users. In the survey used for this study to assess actual users, the items pertaining to the usage of differing social media outlets were a small section of a much larger, broader survey. With such a large survey, there is the potential for distractions and/or exhaustion, and it could be that the data collected is not as accurate as it could be. Along those same lines, self-reported data does have its limitations. Future research could also strive to not only use self-reported personality inventories but also peer-reported personality inventories. This would provide more rich data and also potentially increase accuracy in the representations of typical users of each social media site.

This study is also a good starting point for further research, because it allows for more specific questions to be explored within the context of stereotypes of social media users. For example, each social media site could be teased apart by differing demographics such as gender or age group. The actual personality profile and the perceived personality profile of, say, women aged 50 and older who use Pinterest might look a lot different from women aged 25 and younger who use the same site. Setting restrictive groups like this within each social media platform would most likely give a more accurate and homogeneous average personality profile for typical users. Such a restrictive group would also give participants reporting stereotyped scores a more guided interpretation of what type of typical user they

should be envisioning when rating personality. Such an exploration would be extremely beneficial to this narrative, because this preliminary study is limited by the imprecise definition of typical.

Overall, people do in fact make judgments and inferences about other individuals all the time. These inferences are, for the most part, accurate. Stereotype-based judgments have been explored in previous research within the contexts of physical environments such as bedrooms and personal offices (Gosling et al., 2002), courtrooms, workspaces, and classrooms (Jussim et al., 2005), as well as within the contexts of the online internet space of Facebook (Gosling et al., 2011; Kosinski et al., 2013). Our research has extended the existing previous research to a new sphere of online social interaction that is not limited to just Facebook use. Instead, this research broadens the empirical findings within the online internet context of social interaction to include twelve noticeably different and regularly used social media outlets. By broadening the scope in this way, we have provided opportunity for more empirical evidence to be found in a more broad range of social contexts.

By finding that perceived stereotypes of various social media users' levels of openness to experience are in line with actual typical social media users' self-reported levels of openness to experience, we have shown that individuals' stereotypes can be used to accurately make inferences about others using limited information. We have also shown that individuals do not necessarily need direct observations or even behavioral cues to make these inferences. In this study, individuals were able to make accurate inferences about a characteristic of an imagined individual with the only cue being the name of what social media platform they use frequently in their spare time. This study has further shown, much like the study conducted by Koenig and Eagly (2014), that inferences can not only be made

about an individual target, but also about a target comprised of a large group or community of people. These initial limited findings hold promise for further investigation of our original question regarding the accuracy of stereotypes of social media users. We did find that stereotypes of targets' levels of openness to experience were accurate, but more work needs to be done to be able to fully answer the original question.

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Appendix

Appalachian STATE UNIVERSITY

INSTITUTIONAL REVIEW BOARD
Office of Research Protections
ASU Box 32068
Boone, NC 28608
828.262.2692
Web site: http://researchprotections.appstate.edu/
Email: irb@appstate.edu

To: Rose Mary Webb
Psychology
CAMPUS MAIL

From: IRB Administration
Date: 09/18/2015
RE: Notice of IRB Exemption
Study #: 16-0052
Study Title: Personality, Social Media, and Text Messaging
Exemption Category: 2. Anonymous Educational Tests; Surveys, Interviews or Observations

This study involves minimal risk and meets the exemption category cited above. In accordance with 45 CFR 46.101(b) and University policy and procedures, the research activities described in the study materials are exempt from further IRB review.

Study Change: Proposed changes to the study require further IRB review when the change involves:

- an external funding source,
- the potential for a conflict of interest,
- a change in location of the research (i.e., country, school system, off site location),
- the contact information for the Principal Investigator,
- the addition of non-Appalachian State University faculty, staff, or students to the research team, or
- the basis for the determination of exemption. Standard Operating Procedure #9 cites examples of changes which affect the basis of the determination of exemption on page 3.

Investigator Responsibilities: All individuals engaged in research with human participants are responsible for compliance with University policies and procedures, and IRB determinations. The Principal Investigator (PI), or Faculty Advisor if the PI is a student, is ultimately responsible for ensuring the protection of research participants; conducting sound ethical research that complies with federal regulations, University policy and procedures; and maintaining study records. The PI should review the IRB's list of PI responsibilities.

To Close the Study: When research procedures with human participants are completed, please send the Request for Closure of IRB Review form to irb@appstate.edu.

If you have any questions, please contact the Research Protections Office at (828) 262-2692 (Robin).

Best wishes with your research.

Websites for Information Cited Above

Note: If the link does not work, please copy and paste into your browser, or visithttps://researchprotections.appstate.edu/human-subjects.

1. Standard Operating Procedure
#9: http://researchprotections.appstate.edu/sites/researchprotections.appstate.edu/files/IRB20SOP920Exempt%20Review%20Determination.pdf

Table 1

Sample Size for Actual and Perceived Social Media Users by Platform

Social Media		
Site	**N (Actual)**	**N (Perceived)**
FB	180	63
TW	82	58
IN	76	66
LI	43	57
PI	49	66
TU	41	54
SC	57	65
YY	30	51
RD	91	57
TD	36	60
MD	39	58
GS	84	59

Note. FB = Facebook, TW = Twitter, IN = Instagram, LI = LinkedIn, PI = Pinterest, TU = Tumblr, SC = Snapchat, YY = Yik Yak, RD = Reddit, TD = Traditional Dating Sites (e.g., match.com, eHarmony), MD = Mobile Dating Sites (e.g., Tinder, Grindr), GS = Gaming Sites (e.g., RPGs, Steam).

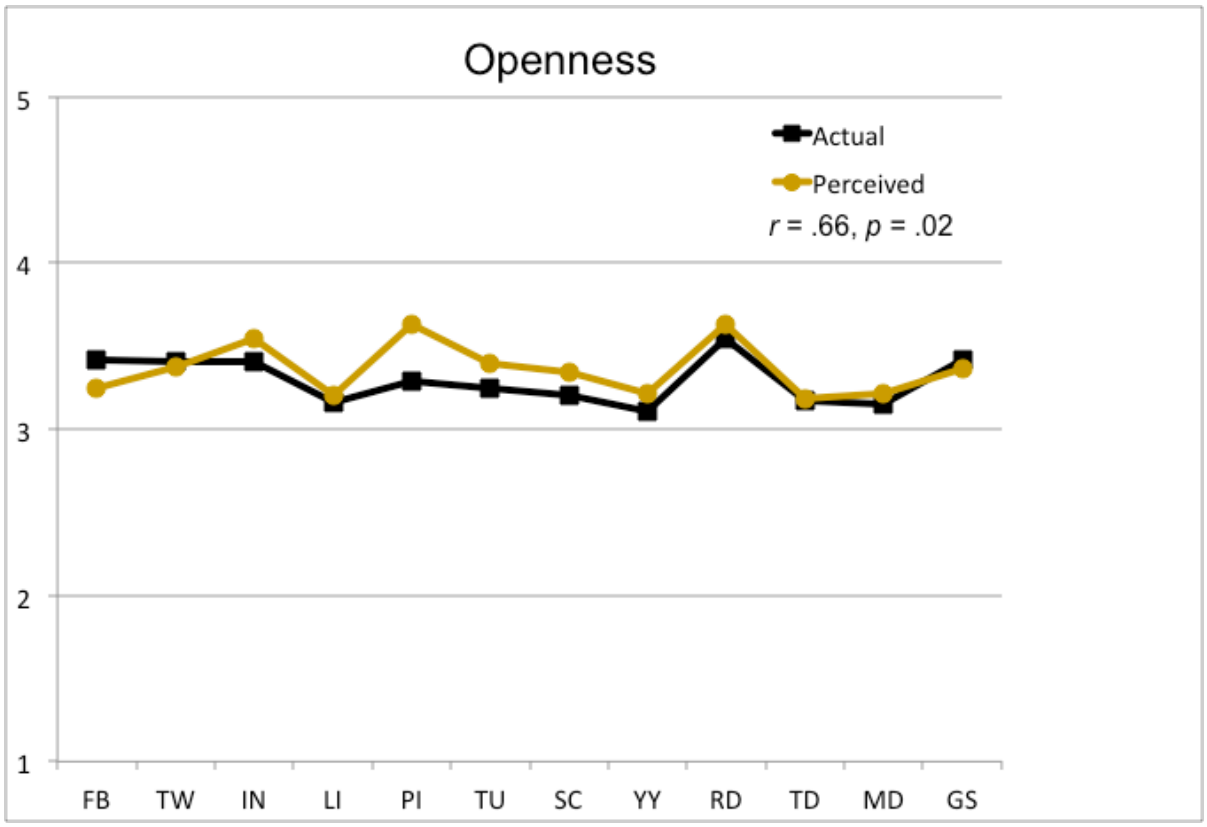

Figure 1. Average actual and perceived scores for openness to experience across the twelve social media platforms. FB = Facebook, TW = Twitter, IN = Instagram, LI = LinkedIn, PI = Pinterest, TU = Tumblr, SC = Snapchat, YY = Yik Yak, RD = Reddit, TD = Traditional Dating Sites (e.g., match.com, eHarmony), MD = Mobile Dating Sites (e.g., Tinder, Grindr), GS = Gaming Sites (e.g., RPGs, Steam).

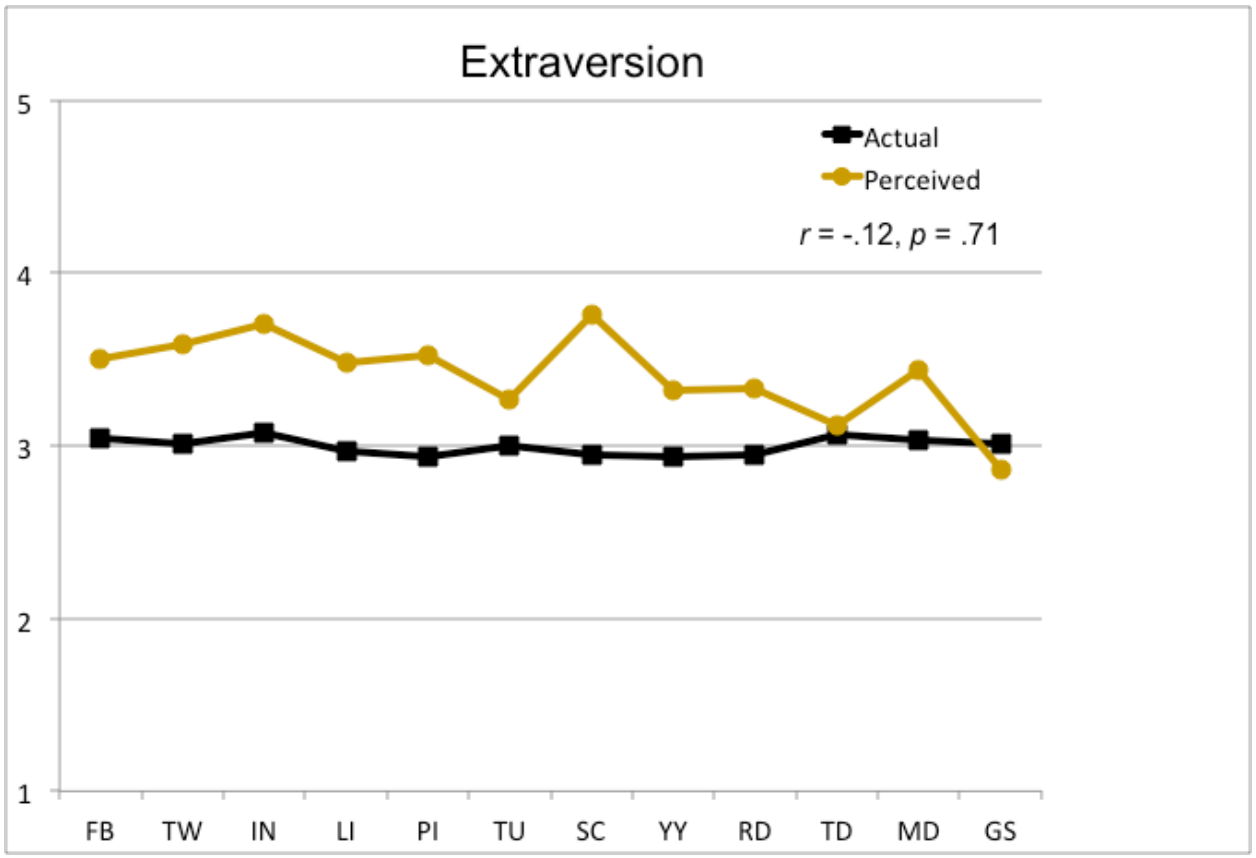

Figure 2. Average actual and perceived scores for extraversion across the twelve social media platforms. FB = Facebook, TW = Twitter, IN = Instagram, LI = LinkedIn, PI = Pinterest, TU = Tumblr, SC = Snapchat, YY = Yik Yak, RD = Reddit, TD = Traditional Dating Sites (e.g., match.com, eHarmony), MD = Mobile Dating Sites (e.g., Tinder, Grindr), GS = Gaming Sites (e.g., RPGs, Steam).

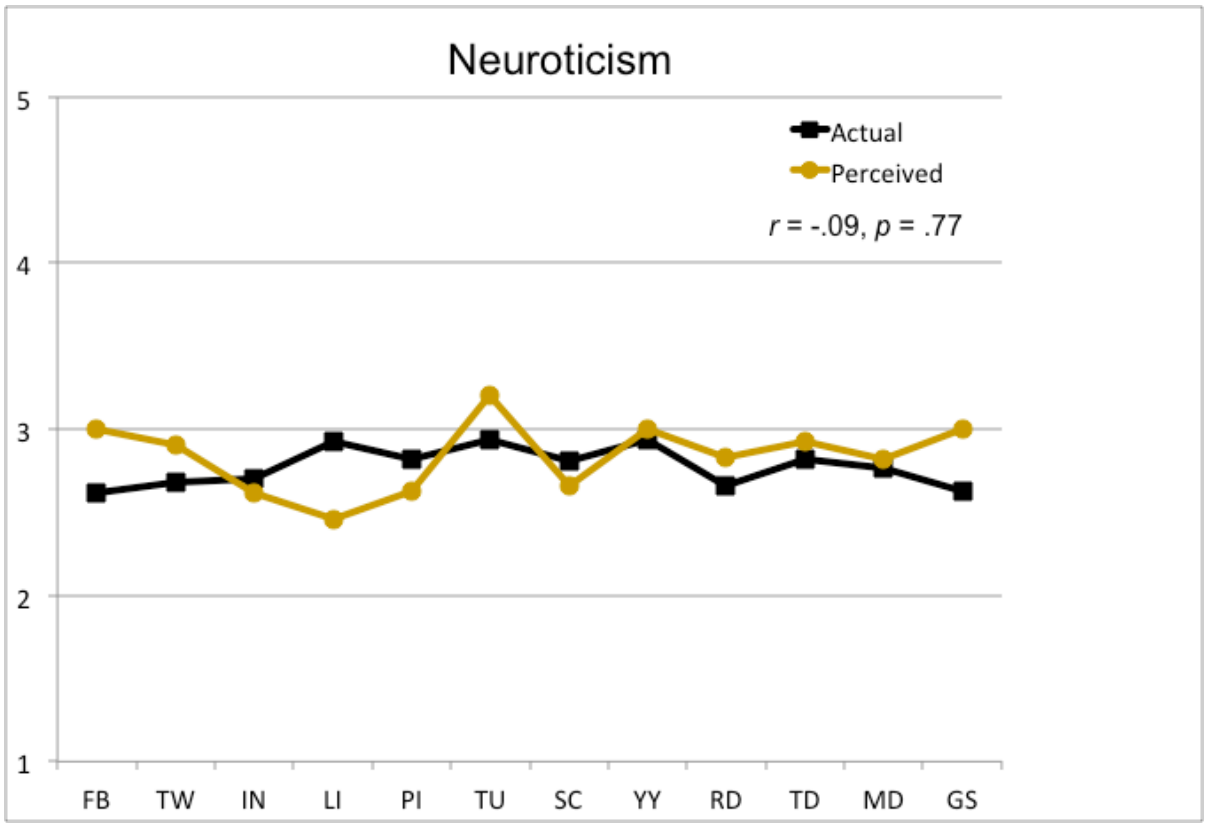

Figure 3. Average actual and perceived scores for neuroticism across the twelve social media platforms. FB = Facebook, TW = Twitter, IN = Instagram, LI = LinkedIn, PI = Pinterest, TU = Tumblr, SC = Snapchat, YY = Yik Yak, RD = Reddit, TD = Traditional Dating Sites (e.g., match.com, eHarmony), MD = Mobile Dating Sites (e.g., Tinder, Grindr), GS = Gaming Sites (e.g., RPGs, Steam).

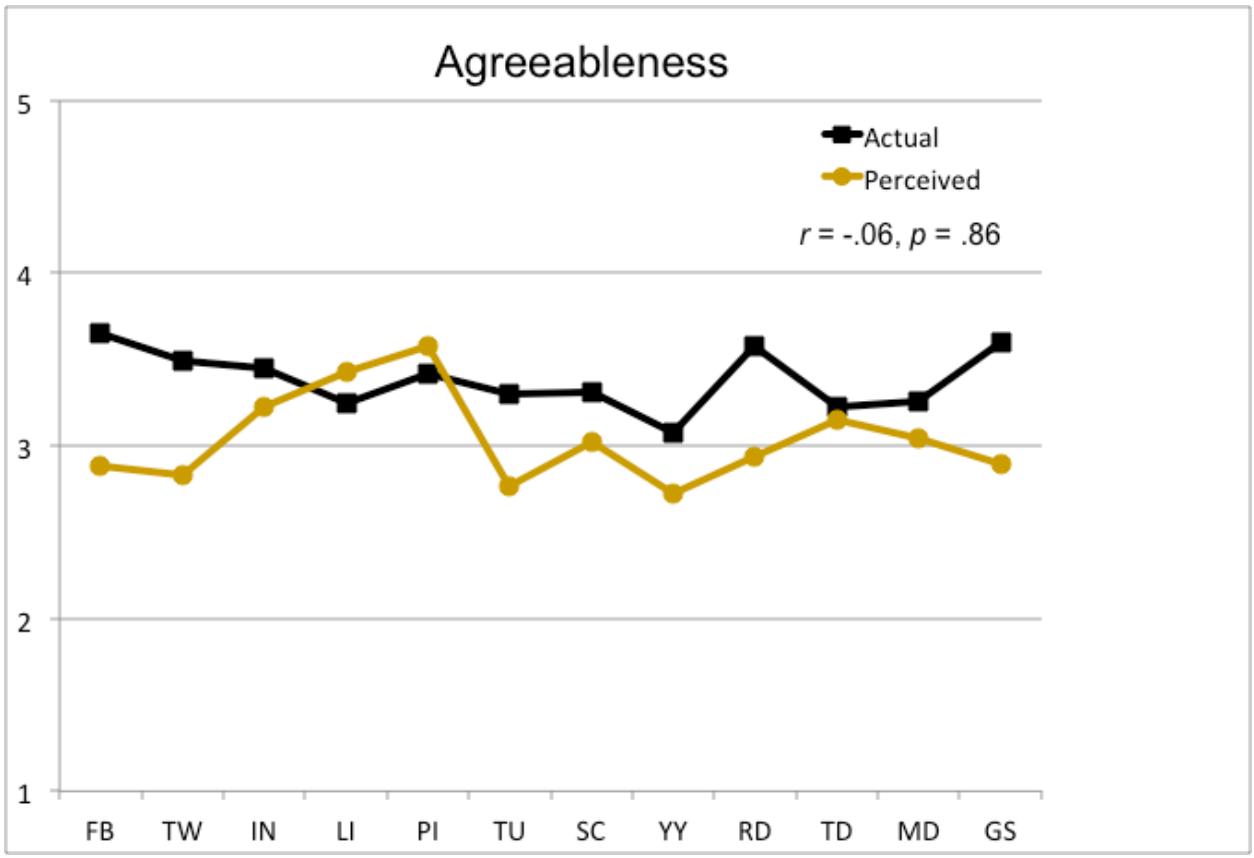

Figure 4. Average actual and perceived scores for agreeableness across the twelve social media platforms. FB = Facebook, TW = Twitter, IN = Instagram, LI = LinkedIn, PI = Pinterest, TU = Tumblr, SC = Snapchat, YY = Yik Yak, RD = Reddit, TD = Traditional Dating Sites (e.g., match.com, eHarmony), MD = Mobile Dating Sites (e.g., Tinder, Grindr), GS = Gaming Sites (e.g., RPGs, Steam).

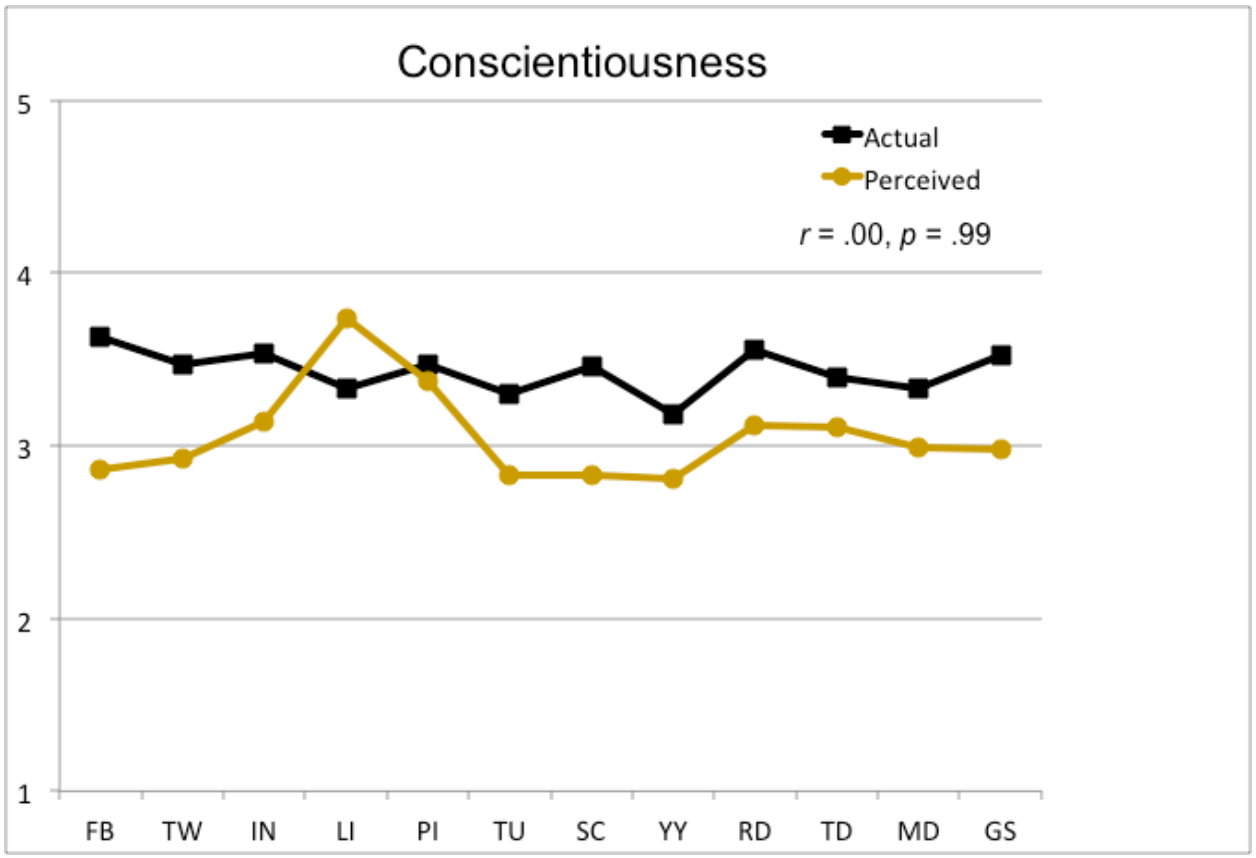

Figure 5. Average actual and perceived scores for conscientiousness across the twelve social media platforms. FB = Facebook, TW = Twitter, IN = Instagram, LI = LinkedIn, PI = Pinterest, TU = Tumblr, SC = Snapchat, YY = Yik Yak, RD = Reddit, TD = Traditional Dating Sites (e.g., match.com, eHarmony), MD = Mobile Dating Sites (e.g., Tinder, Grindr), GS = Gaming Sites (e.g., RPGs, Steam).

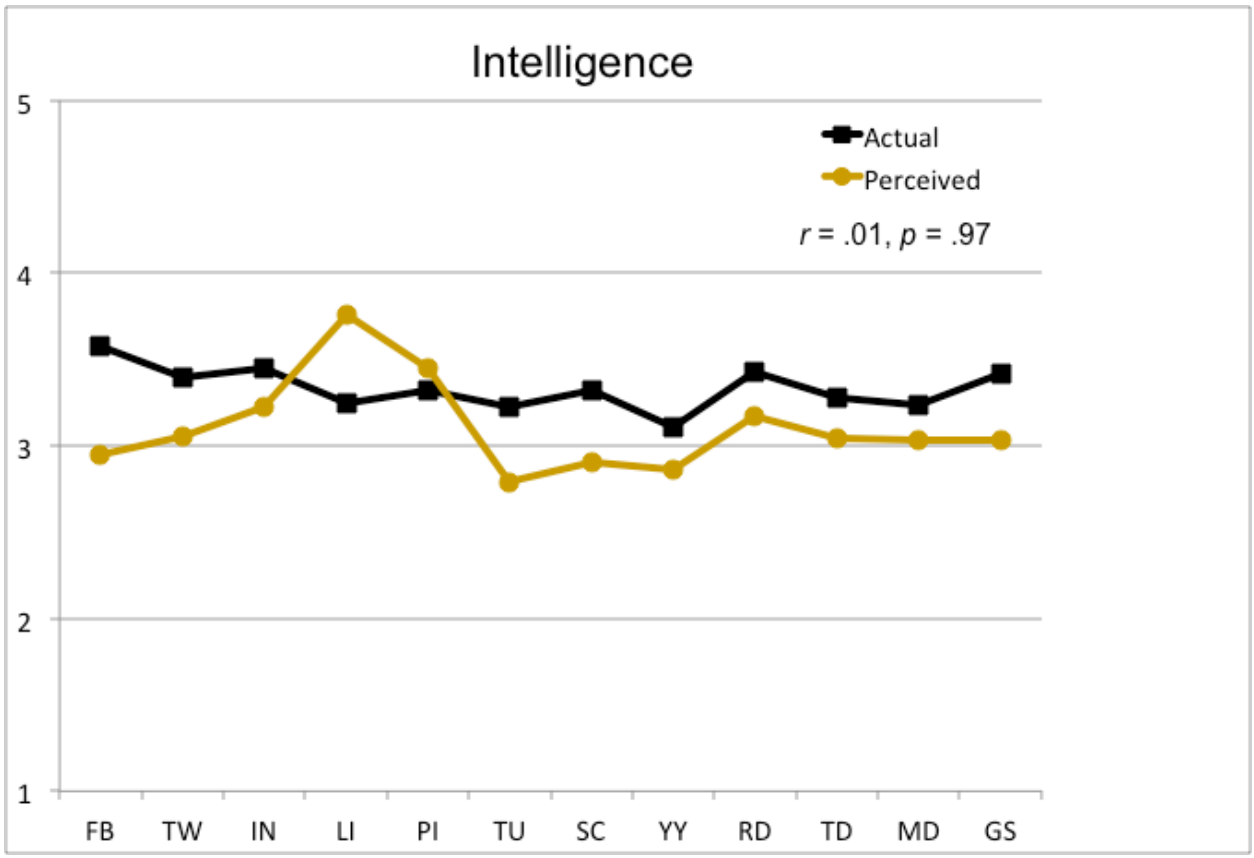

Figure 6. Average actual and perceived scores for intelligence across the twelve social media platforms. FB = Facebook, TW = Twitter, IN = Instagram, LI = LinkedIn, PI = Pinterest, TU = Tumblr, SC = Snapchat, YY = Yik Yak, RD = Reddit, TD = Traditional Dating Sites (e.g., match.com, eHarmony), MD = Mobile Dating Sites (e.g., Tinder, Grindr), GS = Gaming Sites (e.g., RPGs, Steam).

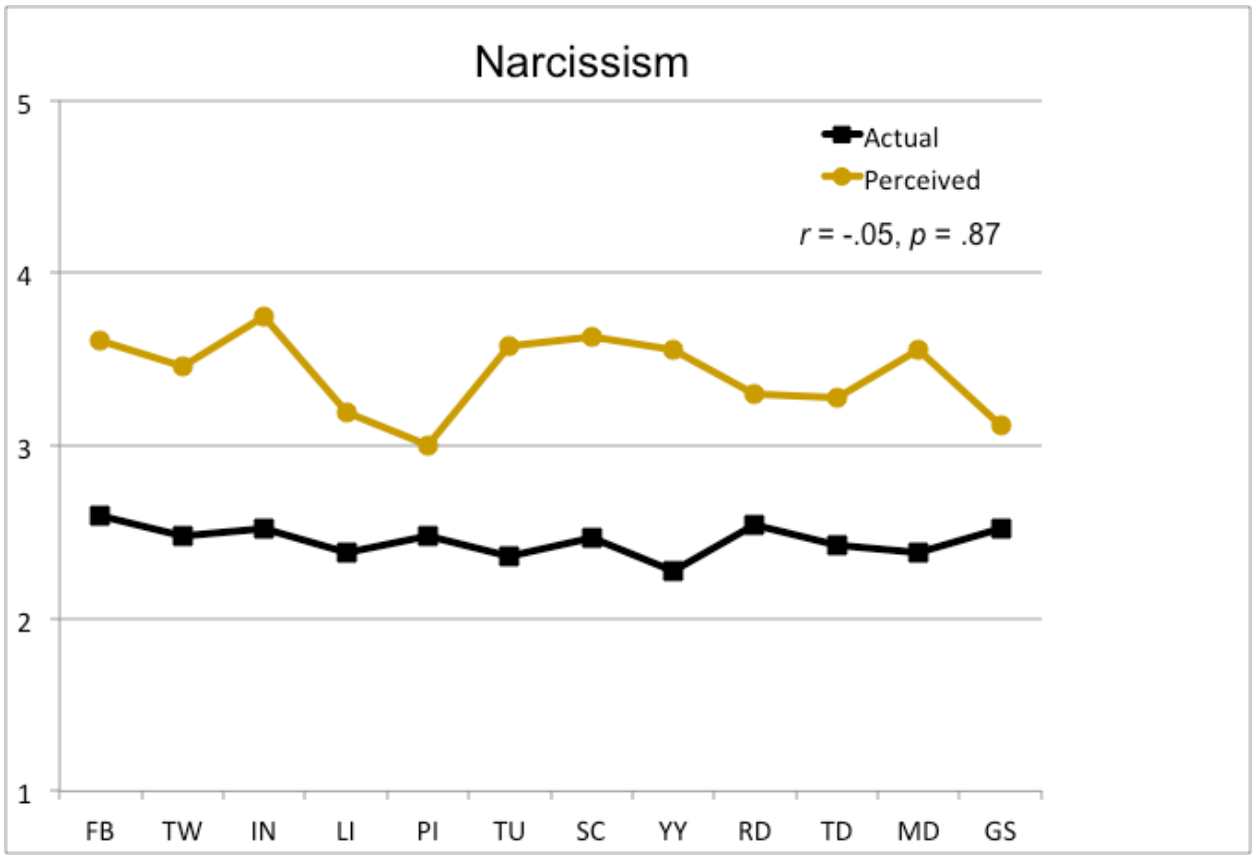

Figure 7. Average actual and perceived scores for narcissism across the twelve social media platforms. FB = Facebook, TW = Twitter, IN = Instagram, LI = LinkedIn, PI = Pinterest, TU = Tumblr, SC = Snapchat, YY = Yik Yak, RD = Reddit, TD = Traditional Dating Sites (e.g., match.com, eHarmony), MD = Mobile Dating Sites (e.g., Tinder, Grindr), GS = Gaming Sites (e.g., RPGs, Steam).